



LED Retrofit for Fluorescent Luminaires

What is this Technology?

This retrofit replaces T8 and T12 fluorescent lamps with LED lamps using existing fixtures. This study will test two leading implementations of LED retrofit technology. One solution provides identical installation to that for standard fluorescent lamps and ballasts; the other installs the retrofit lamps with magnetic clips and quick-connect fittings.

Why is GSA Interested?

Office lighting is dominated by T8 and T12 fluorescent lamps, and lighting accounts for roughly 30% of total energy consumed by GSA buildings. Retrofit kits that replace fluorescent lamps with LEDs in the same form factor promise an easy path to upgrading energy efficiency with minimal disruption and expense.



ENERGY EFFICIENCY The two linear LED replacement tubes selected for this study consume about half as much electricity as fluorescent luminaires with equivalent light output.



COST-EFFECTIVENESS Payback is currently estimated at less than six years in locations with average utility costs, three tube T8 troffers, and 12-hour work days. Payback can be lower where two LED lamps replace three or four fluorescent lamps, and is expected to decline further with increased market penetration.



OPERATIONS & MAINTENANCE LED Retrofit Kits leave the ceiling grid untouched, mitigating concerns about disturbing seismic bracing or asbestos and other toxic materials. The study will evaluate other O&M benefits as well, including less frequent relamping and the elimination of disposal requirements associated with mercury in fluorescent lamps.



DEPLOYMENT POTENTIAL LED luminaire retrofits are potentially applicable to most GSA office buildings with low-bay recessed fluorescent luminaires.

The Green Proving Ground program has commissioned Pacific Northwest National Laboratory to perform real-world measurement and verification of the LED retrofit for fluorescent luminaires in a pilot installation in a federally-owned building.



The Green Proving Ground program leverages GSA's real estate portfolio to evaluate innovative sustainable building technologies. The program aims to drive innovation in environmental performance in federal buildings and help lead market transformation through deployment of new technologies.